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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/054,173
Filing Date: January 18, 2002
Appellant(s): MALONE ET AL.

MALONE ET AL.
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed October 23, 2006 appealing from the Office action mailed January 25, 2006.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is incorrect.

The amendment after final rejection filed on May 25, 2005 has been entered.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is substantially correct. The changes are as follows:

- Claims **1, 8-10, 12-20, 22, 23, 25, 26 & 28-32** are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al. (USPN 6,290,380) in view of Elarde (USOPN 4,532,152).
- Claims **2-5, 21 & 33-34** are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al. (USPN 6,290,380) in view of Elarde (USPN

4,532,152) as applied to claim 1 above, and further in view of applicant's admitted prior art.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

6,290,380	Suzuki et al.	9-2001
4,532,152	Elarde	7-1985

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

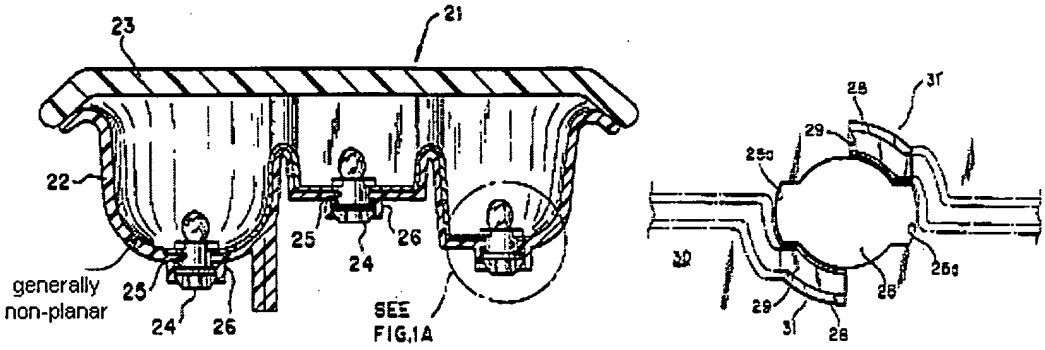
Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

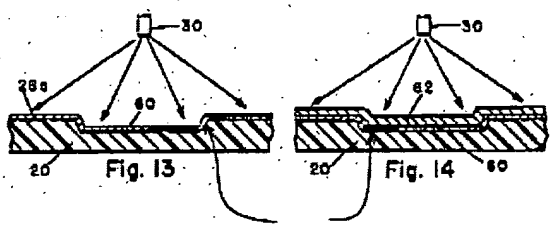
> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims **1, 8-10, 12-20, 22, 23, 25, 26 & 28-32** are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al. (USPN 6,290,380) in view of Elarde (USPN 4,532,152).

Regarding claims **1**, Suzuki et al. discloses the printed circuit board being utilized for a vehicle lamp housing and the conductive material (e.g., 29) is connected to at least one or more light source(s) (e.g., 37) and its power source(s) (e.g., Figures 11-12).



Elarde teaches a method of manufacturing a printed circuit board comprising a depositing particles by direct metallization to form a layer of conductive material on a contoured/generally non-planar surface of a substrate that forms part of the circuit board, in order to form part of one or more electrical spray circuits (claim 1, 14, & 15).



Suzuki et al. discloses the claimed invention except for the various well-known methods of depositing particles to form a layer of conductive material on a substrate.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize well known method of manufacturing a printed circuit board on a substrate/other suitable high temperature plastics (e.g., column 9, lines 60-65 of Elarde) on the lamp housing as taught by Suzuki et al. in order to provide conductive circuitry and connection to the light source(s) and its power source(s).

Note: Claims in a pending application should be given their broadest reasonable interpretation. *In re Pearson*, 181 USPQ 641 (CCPA 1974).

"*generally non-planar*" - not lying in one plane

Things clearly shown in reference patent drawing qualify as prior art features, even though unexplained by the specification. *In re Mraz*, USPQ 25 (CCPA 1972).

Regarding claim 8, Suzuki et al. in view of Elarde discloses the claimed invention, explained above. In addition, Elarde discloses a step of forming distinct electrical pathways in the layer of conductive material during deposition.

Regarding claim 9, Suzuki et al. in view of Elarde discloses the claimed invention, explained above. In addition, Elarde discloses the distinct electrical pathways are formed (e.g., "*coat of brass, thing brass plus electro less copper, or electro less copper plus electroplated copper*") by masking the lamp housing prior to deposition of the layer of conductive material on the lamp housing.

Regarding claim 10, Suzuki et al. in view of Elarde discloses the claimed invention, explained above. In addition, Suzuki et al. discloses depositing a reflective coating on the substrate (e.g., 30).

Regarding claim 12, Suzuki et al. in view of Elarde discloses the claimed invention, explained above. In addition, Elarde discloses a step of applying a spray seal on the substrate (additional layer; Figures 14, 15, 18, 19, 21, 22).

Regarding claim 13, Suzuki et al. in view of Elarde discloses the claimed invention, explained above. In addition, Elarde discloses a step of applying a protective coating to the conductive material (e.g., "*additional layer*"; Figures 14, 15, 18, 19, 21, 22).

Regarding claim 14, Suzuki et al. in view of Elarde discloses the claimed invention, explained above. In addition, Elarde discloses the step of depositing a conductive layer further comprises depositing one or more terminals.

Regarding claim 15, Suzuki et al. in view of Elarde discloses the claimed invention, explained above. In addition, Elarde discloses the step of depositing a conductive further layer comprises a depositing at least one connection for electrically connecting the conductive layer.

Regarding claim **16**, Suzuki et al. clearly discloses a conductive layer (e.g., Figure 4) for one or more electrical circuits deposited directly (e.g., Figure 3) on the substrate.

Suzuki et al. discloses the claimed invention except for the conductive layer is 1 to 4 microns thick.

Elarde teaches that the depth of the conductive layer is approximately 0.003-0.010. It would have been obvious to one having ordinary skill in the art at the time the invention was made to specify workable range of the conductive layer on the substrate, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Note: It has been held that omission of an element and its function in a combination where the remaining elements perform the same functions as before involves only routine skill in the art. *In re Karlson*, 136 USPQ 184.

Regarding claim 17, Suzuki et al. in view of Elarde discloses the claimed invention, explained above.

The method of forming the device is not germane to the issue of patentability of the device itself. Therefore, this (e.g., "*conductive layer is formed by vacuum deposition*

of the electrical circuits on the substrate") limitation has not been given patentable weight.

Regarding claim 18, Suzuki et al. in view of Elarde discloses the claimed invention, explained above. In addition, Suzuki et al. disclose the conductive layer is directly embedded in the substrate.

Regarding claim 19, Suzuki et al. in view of Elarde discloses the claimed invention, explained above. In addition, Suzuki et al. disclose one or more openings in the lamp housing (e.g., 21) for one or more light sources (e.g., 24).

Regarding claim 20, Suzuki et al. in view of Elarde discloses the claimed invention, explained above. In addition, Suzuki et al. disclose one or more terminals attached to the conductive layer at the openings.

Regarding claim 22, Suzuki et al. in view of Elarde discloses the claimed invention, explained above. In addition, Suzuki et al. disclose the light source comprise one or more incandescent lamps (e.g., 24).

Regarding claim 23, Suzuki et al. in view of Elarde discloses the claimed invention, explained above. In addition, Suzuki et al. disclose further comprising a reflective coating (e.g., 30).

Regarding claim 25, Suzuki et al. in view of Elarde discloses the claimed invention, explained above. In addition, Suzuki et al. disclose further comprising a seal (e.g., column 5, lines 30-40).

Regarding claim 26, Suzuki et al. in view of Elarde discloses the claimed invention, explained above. In addition, Suzuki et al. disclose further comprising a protective coating (e.g., reflective coating and other) on the conductive layer.

Regarding claim 28, Suzuki et al. in view of Elarde discloses the claimed invention, explained above. In addition, Suzuki et al. disclose further comprising a single connection for electrically connecting the circuits to one or more power sources (e.g., Figures 1, 6, 11).

Regarding claim 29, Suzuki et al. in view of Elarde discloses the claimed invention, explained above. In addition, Suzuki et al. disclose the housing comprises one or more molded channels (e.g., Figures 3, 8-10) to facilitate receipt of the conductive layer.

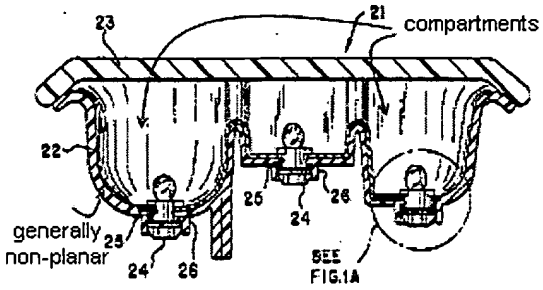
Regarding claim 30, Suzuki et al. in view of Elarde discloses the claimed invention, explained above. In addition, Suzuki et al. disclose the housing comprises one or more smooth corners to facilitate receipt of the conductive layer.

Regarding claim 31, Suzuki et al. in view of Elarde discloses the claimed invention, explained above. In addition, Suzuki et al. disclose the lamp housing is comprised of a thermoplastic material (e.g., column 5, lines 55-65; "*a synthetic resin material*")

Note: It has been held to be within the general skill of a worker in the art to sele4ct a known material on the basis of its suitability for the intended use as a matter of design variation. *In re Leashin*, 125 USPQ 416.

Regarding claim 32, Suzuki et al. in view of Elarde discloses the claimed invention, explained above. In addition, Suzuki et al. disclose generally non-planar

surface is comprised of plurality of compartments, each compartment being generally concave.



Claims **2-5, 21 & 33-34** are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al. (USPN 6,290,380) in view of Elarde (USPN 4,532,152) as applied to claim 1 above, and further in view of applicant's admitted prior art.

Regarding claims 2-5 & 33-34, Suzuki et al. in view of Elarde discloses the claimed invention, Elarde discloses the direct metallization deposition of the layer of conductive material is deposited by vacuum deposition in a vacuum chamber ("*flame spraying, a combination of electro less plating, electroplating, gas plating*").

Elarde does not specifically teach other depositing methods on the layer of conductive material.

However, on page 6-7, originally filed applicant's specification states that "*spray circuit is applied to inner surface of housing by one of various known methods of vacuum deposition ... the LEDs are then soldered in place using known methods such as convection reflow ... etc*".

It would have been obvious to one having ordinary skill in the art at the time of the invention to utilize well-known methods of depositing the layers of conductive or reflective material for an easier manufacturing process.

Regarding claim 21, Suzuki et al. in view of Elarde discloses the claimed invention except for the light sources comprise one or more light emitting diodes.

On page 6-7, originally filed applicant's specification suggests that "*spray circuit is applied to inner surface of housing by one of various known methods of vacuum deposition ... the LEDs are then soldered in place using known methods such as convection reflow ... etc*".

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilized LEDs rather then incandescent lamps, since the examiner takes Official Notice of the equivalence of LEDs and incandescent lamps for their use in the vehicle lamp and the selection of any of these known equivalents would be within the level of ordinary skill in the art.

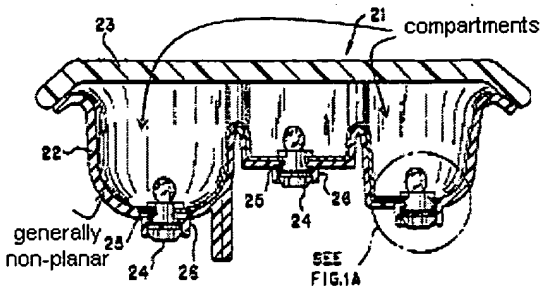
(10) Response to Argument

Applicant's other remaining arguments filed October 23, 2006, see pages 8-15, have been fully considered but they are not persuasive.

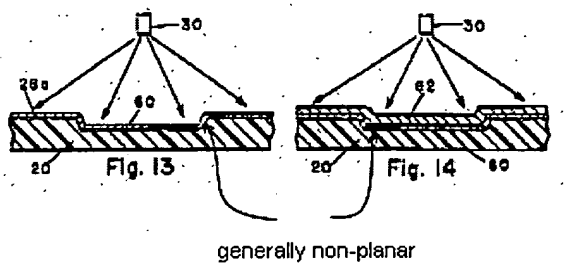
a. In response to applicant's argument, heading "**A**" -

Argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "... *Suzuki nor Elarde teach a conductive layer deposited directly on a substrate that forms part of a lamp housing*, a conductive layer of 1to 4 microns deposited on a substrate and any suggestion or motivation to combine the references in the manner suggested ... etc.*") the Examiner acknowledge the fact that Suzuki et al. (USPN 6,290,380) failed to disclose the various well-known methods of depositing particles to form a layer of

conductive material on a substrate. However, Suzuki discloses the lighting conductor (e.g., 29) communicating with electric conductors of the vehicle is disposed on under the reflection surface (e.g., 30) for electrically connecting the bulbs (e.g., 37) within the lamp housing (e.g., 22).



The following primary reference is then modified by the teachings of Elarde (USPN 4,532,152), where the reference clearly teaches depth of the conductive layer is approximately 0.003-0.010 inches (e.g., column 4, lines 5-15 and column 5, lines 5-15). In other words, the workable range of the conductive layer on the substrate is clearly suggested. Elarde teaches that conductive paths (e.g., channels and non channel surfaces) are metalized through one or more steps of flame spraying, a combination of electro-less plating and electroplating, gas plating or vacuum deposition (e.g., column columns 1-2, lines 55-15).



In addition, Elarde suggest the desirability of fabricating through processes involving a minimum number of steps and a minimum amount of materials (e.g., column

1, lines 55-61). It would have been obvious to one having ordinary skill in the art at the time the invention was made to specify workable range of the conductive layer on the substrate that would require minimum amount of materials, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233. The conclusion of obviousness is based upon taking into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, where the reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

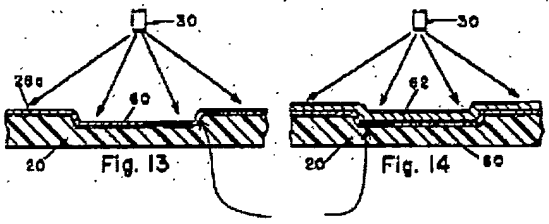
The originally filed specification (e.g., page 6, lines 2-10; "... *It was found that the metallic material, such as copper, deposited on the plastic part teaches the desirable conductivity when the thickness of the trace reaches 1 to 4 microns ... etc.*") only describes the feature involving routine desirability that has been suggested by the Elarde reference. Also, it is believed that the criticality of follow feature(s) (i.e., "*conductive layer is 1-4 microns thick*") are not fully demonstrated nor described. When the relative workable range(s) is recited in claims wherein the improvement over the prior art rests entirely upon size or specific range of an element in a combination of elements, the adequacy of the disclosure of a standard is of greater. The examiner has applied the case law (*In re Aller*, 105 USPQ 233) consistently through out the prosecution and the facts in a prior legal decision are sufficiently similar the application under examination. Therefore, it is proper for the examiner to apply the case law

considering all the relevant facts and suggestion(s) within the prior art, where the originally field specification failed to show other criticality that is patentability distinct.

Note: * the recitation "*a lamp housing ... etc.*" has not been given patentable weight because the recitation occurs in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

b. In response to applicant's argument, heading "**B**" -

Argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "... *a depositing particles by direct metallization to form a layer of conductive material on a ~~contoured~~**/generally non-planer surface of a substrate ... etc.*") claims in a pending application was given their broadest reasonable interpretation. *In re Pearson*, 181 USPQ 641 (CCPA 1974). The term "*generally non-planar*" is clearly shown in the prior art Figures 3, 4a, 5, 13, 14 ... etc., where *generally* non-planar portions (e.g., two upper side portions and a bottom portion) are specifically indicated in the rejection(s).



Things clearly shown in reference patent drawing qualify as prior art features, even though unexplained by the specification. *In re Mraz*, USPQ 25 (CCPA 1972). Although the claims are interpreted in light of the

specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Teachings of Elarde is capable of performing the method to the substrate(s) of Suzuki et al. In this case, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize well known method of manufacturing a printed circuit board on a substrate/other suitable high temperature plastics (e.g., column 9, 60-65 of Elarde) that is *generally* non-planar as taught by Suzuki et al. in order to provide conductive circuitry and connection to the light source(s) and its power source(s).

Note: ** In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "*contoured surface*" or "*heavily contoured*") is not recited in the rejected claim(s).

c. In response to applicant's argument, heading "**C**" -

Argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (e.g., "*the conductive material and reflective material are formed on the substrate either within the same vacuum chamber or simultaneously in the same vacuum chamber ... etc.*") claims **33-34** are rejected under 35 U.S.C. 103(a) as being unpatentable over Suzuki et al. (USPN 6,290,380) in view of Elarde (USPN 4,532,152) as applied to claim 1 above, and <u>further</u>

in view of applicant's admitted prior art. Suzuki et al. in view of Elarde discloses the claimed invention, Elarde discloses the direct metallization deposition of the layer of conductive material is deposited by vacuum deposition in a vacuum chamber ("*flame spraying, a combination of electro less plating, electroplating, gas plating*"). Elarde does not specifically teach other types of depositing methods on the layer of conductive material. However, on page 6-7, originally filed applicant's specification states that "*spray circuit is applied to inner surface of housing by one of various known methods of vacuum deposition ... the LEDs are then soldered in place using known methods such as convection reflow ... etc*". Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention to utilize other well-known methods of depositing the layers of conductive or reflective material for an easier manufacturing process.

d. In response to applicant's argument, heading "**D**" - relating to drawing objection(s), the following matter(s) is not petitionable therefore withdrawn from any further consideration.

e. In response to applicant's argument, heading "**E**" - the declaration of Todd Nykerk included in the Appeal Brief filed on October 23, 2006 is fully considered by the examiner, but insufficient to overcome the rejection of claims 1-6, 8-10, 12-23, 25, 26 and 28-34, because failed to depend upon the amount of factual evidence to support the conclusion of enablement. *In re Buchner*, 929 F.2d 660, 661, 18 USPQ2d 1331, 1332 (Fed. Cir. 1991) The expert's opinion on the ultimate legal conclusion must be

supported by something more than a conclusory statement; cf. *In re Alton*, 76 F.3d 1168, 1174, 37 USPQ2d 1578, 1583 (Fed. Cir. 1996).

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

JC January 9, 2007

Sandra O'Shea
Supervisory Patent Examiner
Technology Center 2800

Conferees:

Sandra O'Shea

Drew Dunn